

Difference between instrumental and personal observations of sunshine.

| Stations. | Apparatus. | Total possible duration for the whole month. | Personal estimated area of clear sky. | Instrumental record of sunshine. | | | |
|-----------------------|------------|--|---------------------------------------|----------------------------------|-------------|---------------|-------------|
| | | | | Photographic. | Difference. | Thermometric. | Difference. |
| | | Hrs. | % | % | % | % | % |
| Galveston, Tex. | P. | 355.9 | 52 | 57 | + 5 | | |
| New Orleans, La. | P. | 354.9 | 37 | | | 39 | + 2 |
| Savannah, Ga. | P. | 352.8 | 58 | 63 | + 5 | | |
| Vicksburg, Miss. | P. | 352.8 | 58 | | | 61 | + 3 |
| Phoenix, Ariz. | P. | 351.5 | 73 | 81 | + 8 | | |
| San Diego, Cal. | P. | 351.5 | 63 | 69 | 0 | | |
| Atlanta, Ga. | T. | 350.9 | 58 | | | 55 | - 3 |
| Los Angeles, Cal. | P. | 350.9 | 68 | 77 | + 9 | | |
| Wilmington, N. C. | T. | 350.9 | 57 | | | 65 | + 8 |
| Little Rock, Ark. | T. | 350.1 | 49 | | | 69 | + 20 |
| Santa Fe, N. Mex. | P. | 348.9 | 46 | 64 | + 18 | | |
| Fresno, Cal. | T. | 347.9 | 75 | | | 84 | + 9 |
| Dodge City, Kans. | P. | 347.3 | 64 | 72 | + 8 | | |
| Louisville, Ky. | T. | 347.3 | 64 | | | 74 | + 10 |
| San Francisco, Cal. | T. | 347.3 | 66 | | | 60 | + 3 |
| Baltimore, Md. | T. | 346.0 | 54 | | | 44 | + 10 |
| Cincinnati, Ohio. | T. | 346.0 | 62 | | | 71 | + 9 |
| Kansas City, Mo. | P. | 346.0 | 69 | 74 | + 5 | | |
| St. Louis, Mo. | T. | 346.0 | 71 | | | 79 | + 8 |
| Washington, D. C. | P. | 346.0 | 54 | 57 | + 3 | | |
| Columbus, Ohio. | P. | 344.9 | 42 | | | 54 | + 12 |
| Denver, Colo. | P. | 344.9 | 59 | 70 | + 11 | | |
| Philadelphia, Pa. | T. | 344.9 | 39 | | | 47 | + 8 |
| Cheyenne, Wyo. | P. | 343.9 | 55 | 78 | + 23 | | |
| Eureka, Cal. | P. | 343.9 | 46 | 45 | - 1 | | |
| New York, N. Y.* | P. | 343.9 | 35 | 65 | + 9 | 34 | - 1 |
| Omaha, Nebr. | P. | 343.9 | 34 | 76 | + 12 | | |
| Salt Lake City, Utah. | T. | 342.5 | 24 | | | 35 | - 1 |
| Binghamton, N. Y. | T. | 342.5 | 31 | | | 38 | + 7 |
| Boston, Mass. | P. | 342.5 | 55 | | | 63 | + 5 |
| Chicago, Ill. | T. | 342.5 | 52 | | | | |
| Cleveland, Ohio. | T. | 342.5 | 68 | | | 76 | + 8 |
| Des Moines, Iowa. | T. | 342.5 | 58 | | | 61 | + 3 |
| Detroit, Mich. | T. | 342.5 | 55 | | | 53 | + 2 |
| Dubuque, Iowa† | T. | 341.8 | 35 | | | 44 | + 9 |
| Buffalo, N. Y. | T. | 341.8 | 33 | | | 30 | - 3 |
| Rochester, N. Y. | T. | 340.5 | 26 | 36 | + 10 | | |
| Northfield, Vt. | T. | 340.5 | 25 | | | 33 | + 8 |
| Portland, Me. | P. | 339.8 | 28 | 35 | + 7 | | |
| Eastport, Me. | T. | 339.8 | | | | 61 | |
| Minneapolis, Minn. | P. | 338.5 | 57 | | | 59 | + 2 |
| Portland, Oreg.* | P. | 338.5 | 57 | 56 | - 1 | | |
| Bismarck, N. Dak. | P. | 336.7 | 60 | 59 | - 1 | | |
| Helena, Mont. | P. | 336.7 | 59 | 67 | + 8 | | |

*The personal estimate is 36 for 31 days, but the instrumental record is for 27 days, for which the total possible was 301.8.

†The personal estimate is 56 for 31 days, but the instrumental record is for 26 days, for which the total possible was 284.3.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—The dates on which reports of thunderstorms for the whole country were most numerous were: 27th, 44; 28th, 114; 29th, 83.

Thunderstorm reports were most numerous in: Iowa and Missouri, 43; Louisiana, 46; Texas, 49.

Thunderstorms were most frequent in: Louisiana and Mississippi, 10 days; Arizona, 11; Missouri, 13; New Mexico, 17; Texas, 15.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 16th to the 24th, inclusive. On the remaining twenty-two days of this month 101 reports were received, or an average of about 5 per day. The dates on which the number of reports especially exceeded this average were: 8th, 12; 9th, 20; 10th, 27; 11th, 9; 12th, 10.

Auroras were reported most frequently in: Illinois, Maine, New Hampshire, and North Dakota, 5 days; Massachusetts, 7; Montana, 6.

The number of reports was a large percentage of the number of observers in: Maine, 100; Montana, 32; New Hampshire, 48; North Dakota, 36 per cent.

CANADIAN REPORTS.

Thunderstorms were reported as follows: Grand Manan, 18th; Parry Sound, 29th; Swift Current, 5th; Banff, 2d.

Auroras were reported as follows: Sydney, 9th; Halifax, 9th; Grand Manan, 10th; Yarmouth, 9th; St. Andrews, 10th; Charlottetown, 12th; Father Point, 4th, 11th, 12th; Quebec, 9th to 12th; Port Arthur, 1st; Winnipeg, 8th, 10th, 12th to 15th, 29th; Minnedosa, 9th, 10th, 11th, 15th; Qu'Appelle, 13th, 14th, 15th; Medicine Hat, 8th, 9th, 12th, 13th, 29th; Calgary, 12th 13th, 15th; Prince Albert, 12th; Battleford, 11th, 12th.

INLAND NAVIGATION.

The *extreme and average stages of water* in the rivers for the current month are given in Table VIII. At no station, with a single exception, has the river approached the danger line. With the exception of the Ohio and Potomac there has been little range in the heights of rivers; these have remained steadily at a low stage. At the end of the previous month the Monongahela and other rivers of West Virginia were moderately full, and these waters caused a rise in the Ohio during the early part of October, the crest being reached at Cincinnati on the 6th and at Cairo on the 12th. The following rise in the Mississippi below Cairo was slight. The rises were 14.9 feet at Cincinnati, 7.9 at Cairo, and 5.3 at Memphis.

The breaking of a dam on the Shenandoah River caused a flood wave to descend this river and the Potomac. The water at Harpers Ferry, W. Va., reached a stage of 31 feet or 17 feet above the danger line. The wave was of short length and rapidly flattened as it descended, so that at Washington, D. C., the danger line was not reached.

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective services.

Snowfall and rainfall are expressed in inches.

Alabama.—The mean temperature was 63.2°, or 1.6° below normal; the highest was 98°, at Mount Willing on the 4th, and the lowest, 26°, at Oneonta on the 19th. The average precipitation was 2.27, or 0.20 below normal; the greatest monthly amount, 5.95, occurred at Aleo, and the least, 0.90, at Rock Mills. The drought over the central and northern portions of the State, which began during the second decade of July, and which was only partially relieved by showers during the

latter part of September and early part of October, was effectually broken by very general rains during the third decade. All field crops were practically gathered before this rainy season, which was badly needed to furnish water for stock, and which started up many cotton gins and mills which had for some time been idle on account of scarcity of water. There were no severe storms in this section during the month, which as a whole was a favorable one for the farmers, who have been able to do some fall plowing and seeding.

Arizona.—The mean temperature was 66.2°, or 1.1° above normal; the highest was 117°, at Parker on the 3d, and the lowest, 27°, at Fort Apache on the 31st. The average precipitation was 3.02, or 2.33 above normal; the greatest monthly amount, 8.80, occurred at Benson; no rain fell at Texas Hill.

Arkansas.—Report delayed.

California.—The mean temperature was 62.7°, or 1.6° above normal; the highest was 112°, at Volcano Springs on the 6th, and the lowest, 5°, at Bodie on the 28th. The average precipitation was 1.31, or 0.09 above normal; the greatest monthly amount, 5.02, occurred at Claremont, while none fell at Indio and Volcano Springs.

Colorado.—The mean temperature was 46.0°, or 0.5° below normal; the highest was 89°, at Crook and Lamar on the 1st, and the lowest, 7°, at Gunnison on the 30th. The average precipitation was 0.94, or 0.06 above normal; the greatest monthly amount, 3.80, occurred at Santa Clara, and the least, "trace," at Garnett, Gunnison, and Saguache.

Florida.—The mean temperature was 72.4°, or 1.7° below normal; the highest was 94°, at Lake Butler on the 22d, and the lowest, 40°, at Emerson on the 16th and Milton on the 19th. The average precipitation was 3.11, or 1.22 below normal; the greatest monthly amount, 7.75, occurred at Milton, and the least, 0.76, at Brookville.

Georgia.—The mean temperature was 64.0°, or about 1.0° below normal; the highest was 90°, at Brag on the 7th, and the lowest, 28°, at Clayton on the 19th. The average precipitation was 1.49, or 1.24 below normal; the greatest monthly amount, 3.36, occurred at Dahlonga, and the least, 0.50, at Hephzibah.

Idaho.—The mean temperature was 47.8°; the highest was 96°, at Payette on the 1st, and the lowest, 8°, at Chesterfield on the 6th. The average precipitation was 0.72; the greatest monthly amount, 1.74, occurred at Ola, while none fell at Minedoka and Rexbury.

Illinois.—The mean temperature was 50.8°, or 2.7° below normal; the highest was 87°, at Golconda on the 14th, and the lowest, 17°, at Lanark on the 21st. The average precipitation was 1.24, or 1.60 below normal; the greatest monthly amount, 2.80, occurred at Greenville, and the least, 0.05, at Streator.

Indiana.—The mean temperature was 50.7°; the highest was 86°, at Mount Vernon on the 29th, and the lowest, 20°, at Cambridge City on the 19th. The average precipitation was 1.15; the greatest monthly amount, 2.71, occurred at Edwardsville, and the least, "trace," at Bedford.

Iowa.—The mean temperature was 47.9°, or 1.6° below normal; the highest was 88°, at Malvern on the 1st, and the lowest, 12°, at Dows on the 20th, Elkader and Fayette on the 21st, Mason City on the 22d and 23d, and Spencer on the 24th. The average precipitation was 3.13, or 0.28 above normal; the greatest monthly amount, 5.05, occurred at Knoxville, and the least, 1.51, at Fort Madison.

Kansas.—The mean temperature was 54.2°, or 1.5° below normal; the highest was 95°, at Hutchinson on the 1st, and the lowest, 17°, at Colby on the 11th. The average precipitation was 2.79, or 1.04 above normal; the greatest monthly amount, 5.62, occurred at Halstead, and the least, 0.60, at Lakin.

Kentucky.—The mean temperature was 55.8°, or 0.2° below normal; the highest was 90°, at Ashland on the 30th, and the lowest, 25°, at Eubanks on the 25th. The average precipitation was 1.71, or 0.30 below normal; the greatest monthly amount, 3.50, occurred at Fords Ferry, and the least, 0.37, at Alpha. The weather was generally excellent for fall plowing, though a little dry in places. Winter wheat is reported to be growing very nicely.

Louisiana.—The mean temperature was 67.3°, or 1.0° above normal; the highest was 97°, at Maurepas on the 3d, and the lowest, 30°, at Amite on the 17th. The average precipitation was 5.34, or 2.82 above normal; the greatest monthly amount, 8.79, occurred at Port Eads, and the least, 1.16, at Cameron. Favorable weather for harvesting the crop continued to the 20th of the month, after which there was a retardation due to frequent rains. The heavy rainfalls in some localities caused considerable damage to cotton, making the bolls rot badly. There was, however, but little cotton in the fields at that time, and the damage was confined to the little late or top crop, which it was hoped would escape a killing frost. The rains benefited all vegetation, pastures, gardens, sweet potatoes, and turnips, and also favored the fall planted cane. Sugar grinding began at some plantations during the middle of the month, and continues throughout the belt at the close of the month, with generally good yields, the tonnage being fair and the amount of saccharine matter rather larger than usual at this time of the year.

Maryland.—The mean temperature was 52.6°, or 2.0° below normal; the highest was 85°, at Charlotte Hall school on the 31st, and the lowest, 16°, at Deer Park on the 26th. The average precipitation was 1.69, or 1.32 below normal; the greatest monthly amount, 5.19, occurred at Millsboro, and the least, 0.30, at Distributing Reservoir.

Michigan.—The mean temperature was 44.9°, or 1.6° below normal; the highest was 79°, at Vandalia on the 28th, and the lowest, 11°, at Iron River on the 18th. The average precipitation was 1.50, or 0.92 below normal; the greatest monthly amount, 4.69, occurred at Wetmore, and the least, 0.27, at Stanton.

Minnesota.—Report delayed.

Mississippi.—The mean temperature was 64.2°, or 1.0° below normal; the highest was 92°, at Leakesville, Hazlehurst, and Pearlinton on the 3d, and the lowest, 31°, at Batesville on the 18th. The average precipitation was 3.74, or 0.92 above normal; the greatest monthly amount, 7.90, occurred at Hazlehurst, and the least, 0.27, at Hernando.

Missouri.—The mean temperature was 53.9°, or 1.6° below normal; the

highest was 90°, at Pickering on the 1st, and the lowest, 19°, at Elmira on the 24th. The average precipitation was 2.52, or 0.05 below normal; the greatest monthly amount, 4.51, at Irena, and the least, 1.20, at St. Louis and Sikeston. In most sections the month was unusually favorable for fall work on the farm, and also for the growth of winter wheat, which is reported as looking fine.

Montana.—The mean temperature was 46.0°, or 4.0° above normal; the highest was 86°, at Fort Keogh and Miles City on the 2d, and at Glendive on the 4th; the lowest was 5°, at Wibaux on the 20th. The average precipitation was 0.50, or 0.36 below normal; the greatest monthly amount, 1.50, occurred at Choteau, and the least, "trace," at Martinsdale.

Nebraska.—The mean temperature was 47.9°, or 2.2° below normal; the highest was 91°, at Auburn on the 1st, and the lowest, 12°, at Kennedy on the 10th, and at Whitman on the 11th. The average precipitation was 1.83, or 0.35 above normal; the greatest monthly amount, 4.56, occurred at Nebraska City, and the least, 0.20, at Kimball and Seneca.

Nevada.—The mean temperature was 50.4°, or 1.0° above normal; the highest was 94°, at Sunnyside on the 1st, and the lowest, 11°, at Stofiel on the 24th. The average precipitation was 0.24, or 0.16 below normal; the greatest monthly amount, 1.02, occurred at Ruby Valley, while none fell at several stations.

New England.—The mean temperature was 46.6°; the highest was 78°, at Middletown, Conn., on the 31st, and the lowest, 12°, at Flagstaff, Me., on the 20th. The average precipitation was 3.58; the greatest monthly amount, 6.02, occurred at Hyannis, Mass., and the least, 2.00, at Fairfield, Me.

New Jersey.—The mean temperature was 51.5°, or 2.9° below normal; the highest was 82°, at Barnegat on the 27th and 31st, and the lowest, 21°, at Boonton, Charlotteburg, and Dover on the 26th. The average precipitation was 2.24, or 1.17 below normal; the greatest monthly amount, 4.58, occurred at Cape May City, and the least, 1.27, at Atlantic City.

New Mexico.—The mean temperature was considerably below normal; the highest was 87°, at Fort Union and Roswell, on the 1st, and the lowest, 11°, at La Belle, on the 16th. The average precipitation was more than three times the normal amount; the greatest monthly amount, 7.64, occurred at Shattucks Ranch, and the least, 0.09, at Raton.

New York.—The mean temperature was 46.6°, or 2.6° below normal; the highest was 79°, at Avon and Perry City on the 29th, and the lowest, 17°, at New Lisbon on the 26th. The average precipitation was 2.29, or 1.05 below normal; the greatest monthly amount, 6.49, occurred at South Canister, and the least, 0.58, at Rochester.

North Carolina.—The mean temperature was 57.5°, or 1.9° below normal; the highest was 85°, at Southport on the 1st, and the lowest, 23°, at Flat Rock on the 19th. The average precipitation was 1.90, or 1.65 below normal; the greatest monthly amount, 5.59, occurred at Kittyhawk, and the least, 0.36, at Roxboro.

North Dakota.—The mean temperature was 40.2°, or 3.6° below normal; the highest was 88°, at Washburn on the 25th, and the lowest, 5°, at Dickinson and Washburn on the 20th and at Medora on the 19th. The average precipitation was 0.78, or 0.28 below normal; the greatest monthly amount, 2.73, occurred at Wild Rice, and the least, "trace," at Coal Harbor.

Ohio.—The mean temperature was 49.0°, or 2.3° below normal; the highest was 85°, at Canal Dover on the 30th, and the lowest, 17°, at Hedges on the 25th. The average precipitation was 1.20, or 1.17 below normal; the greatest monthly amount, 3.52, occurred at Fostoria, and the least, 0.15, at New Bremen. Farmers made good progress with their work.

Oklahoma.—The mean temperature was 60.0°; the highest was 98°, at Anadarko on the 2d, and the lowest, 27°, at Beaver on the 30th. The average precipitation was 2.75; the greatest monthly amount, 6.68, occurred at Wagoner, and the least, 1.21, at Clifton and Keokuk Falls.

Oregon.—The mean temperature was 52.4°, or 0.4° above normal; the highest was 88°, at Dayville on the 1st, and the lowest, 15°, at Burns on the 22d and Silver Lake on the 9th. The average precipitation was 2.69, or 1.05 below normal; the deficiency was general throughout the State, but more marked in the eastern portion; the greatest monthly amount, 67.1, occurred at Nehalem; no rain fell at Burns.

Pennsylvania.—The mean temperature was 48.9°, or 1.4° below normal; the highest was 86°, at Warren on the 29th, and the lowest, 18°, at Blooming Grove on the 26th. The average precipitation was 3.19, or 1.41 below normal; the greatest monthly amount, 5.70, occurred at Williamsport, and the least, 0.94, at Elwood Junction.

South Carolina.—The mean temperature was 61.3°, or 1.0° below normal; the highest was 91°, at Little Mountain on the 2d, and the lowest, 28°, at Holland on the 18th. The average precipitation was 1.41, or 1.69 below normal; the greatest monthly amount, 2.75, occurred at Spartanburg, and the least, 0.38, at Allendale. The month was generally favorable for gathering autumn crops, but too dry for seeding wheat and oats, although much grain was sown. Germination and growth slow, but conditions were more favorable after the 20th.

South Dakota.—The mean temperature was 44.7°, or 2.5° below normal; the highest was 89°, at Hotch City and Pierre on the 3d, and the

lowest, 6°, at Webster on the 24th. The average precipitation was 1.87, or 0.82 above normal; the greatest monthly amount, 7.45, occurred at Tyndall, and the least, "trace," at Fort Meade and Nowlin.

Tennessee.—The mean temperature was 57.5°, or about normal; the highest was 88°, at Benton on the 8th, and the lowest, 27°, at St. Joseph on the 18th, and at Bristol on the 24th. The average precipitation was 1.54, or about 0.75 below normal; the greatest monthly amount, 3.56, occurred at Brownsville, and the least, 0.51, at Rugby.

Texas.—Report delayed.

Utah.—The mean temperature was 51.0°, or slightly above normal; the highest was 94°, at St. George on the 2d, and the lowest, 13°, at Giles on the 27th. The average precipitation was 0.61, or about one-half the normal; the greatest monthly amount, 1.53, occurred at Scipio, and the least, 0.10, at Mammoth.

Virginia.—The mean temperature was 54.7°, or 2.7° below normal; the highest was 85°, occurring at several stations on several dates; the lowest was 21°, at Stanardsville on the 19th. The average precipitation was 0.95, or 2.22 below normal; the greatest monthly amount, 2.90, occurred at Birdsnest, and the least, "trace," at Guinea.

Washington.—The mean temperature was 50.0°, or 0.2° below normal; the highest was 88°, at Centerville on the 18th, and the lowest, 18°, at Cascade Tunnel on the 8th. The average precipitation was 2.59, or 0.36 below normal; the greatest monthly amount, 7.88, occurred at Queets, and the least, 0.03, at Fort Simcoe.

West Virginia.—The mean temperature was 50.8°, or about 3.0° below normal; the highest was 82°, at Morgantown on the 29th, and the low-

est, 20°, at White Sulphur Springs on the 19th, and at Marlinton and Philippi on the 25th. The average precipitation was 2.08, or about 1.00 below normal; the greatest monthly amount, 4.37, occurred at Weston, and the least, 0.45, at Old Fields.

Wisconsin.—The mean temperature was 44.1°, or about 2.0° below normal; the highest was 78°, at Appollonia on the 1st, and the lowest, 4°, at City Point on the 22d. The most notable feature of the month was the almost total lack of precipitation, until the 28th, and the excessive precipitation of the last three days, which brought the monthly average nearly to the normal amount for the month. The greatest amount, 4.22, occurred at Grantsburg, and the least, 0.12, at Menasha.

Wyoming.—The mean temperature was 44.8°, or 1.0° below normal; the highest was 89°, at Wheatland on the 5th, and the lowest, 10°, at Fort Laramie on the 24th, Lander on the 29th, and Fort Washakie on the 30th. The average precipitation was 0.50, or 0.26 below normal; the greatest monthly amount, 0.87, occurred at Lusk, and the least, 0.12, at Wheatland.

DELAYED SEPTEMBER REPORT.

Arizona.—The mean temperature was 77.6°, or 4.0° above normal; the highest was 112°, at Parker on the 16th, and the lowest, 35°, at Whipple on the 24th. The average precipitation was 1.87, or 0.67 above normal; the greatest monthly amount, 4.62, occurred at Allaires Ranch, Cochise County, while no rain fell at San Simon in the same county.

SPECIAL CONTRIBUTIONS.

THE INTERNATIONAL METEOROLOGICAL CONFERENCE AT PARIS, SEPTEMBER, 1896.

By A. LAWRENCE ROTCH (dated Nov. 14, 1896).

This Conference, which was held in Paris between the 17th and 23d of September, 1896, was similar in character to that which met in 1891 at Munich, that is, it was composed of invited representatives from the principal meteorological services and observatories of the world. The following gentlemen attended the meeting: MM. Angot, Paris; Anguiano, Mexico; Baillaud, Toulouse; von Bezold, Prussia; Biese, Finland; Billwiller, Switzerland; Ellis, Greenwich; Erk, Bavaria; Fines, Perpignan; Hepites, Roumania; Hergesell, Alsace-Lorraine; Hildebrandsson, Sweden; Jaubert, Paris; Kesslitz, Pola; Konkoly, Hungary; Lancaster, Belgium; Mascart, France; Mohn, Norway; Moureaux, Parc Saint Maur; Neumayer, Germany; Paulsen, Denmark; Riggenbach, Bale; van Rijckevorsel, Netherlands; Rotch, Harvard and Blue Hill observatories; Rykatcheff, Russia; Scott, Great Britain; Schmidt, Stuttgart; Snellen, Netherlands; Stupart, Canada; Symons, London; Tacchini, Italy; Teisserenc de Bort, Paris; Thévenet, Algeria; Watzoff, Bulgaria; Wragge, Queensland, Australia. The following guests were admitted to the meeting as specialists: MM. Dufour, Lausanne; Page, United States Hydrographic Office, Washington; Tolnay, Budapest; Rücker, London; Becquerel, Fron, Chauveau, Mathias, and de Fonvielle, Paris.

Officers of the meeting were chosen as follows: President, M. Mascart; Vice Presidents, MM. von Bezold and Tacchini; Secretaries, MM. Scott, Erk, and Angot. The language of the Conference was French, but communications in German and English were allowed. Mr. Scott, Secretary of the Permanent International Committee, read a report of the work which had been done since its meeting at Upsala. The provisional programme of questions proposed for the meeting was then taken up and subcommittees were appointed to consider the questions relating to international telegraphy, instruments and methods of observation, cloud observations, terrestrial magnetism and atmospheric electricity, and to report to the Conference. It was the opinion of the Conference that decisions of former meetings should not be reconsidered, and that there should be no interference with government work. Several questions were

excluded as beyond the province of the Conference; others were referred to future meetings, among them being the proposition of Prof. Bigelow to adopt the solar magnetic period, and the question left over from the Munich Conference as to the best methods of extending observations and meteorological publications in the interest of agriculture. No report on this subject had been received from the committee appointed at Munich, but the Chief of the United States Weather Bureau sent for distribution specimens of the agricultural bulletins and weather predictions issued in different sections of the United States.

In this account of the proceedings the questions which were not definitely acted upon are not mentioned.

Mr. Symons' proposition of double stations, left over from the Munich Conference, was finally settled thus:

It is desirable that at one station, at least, in each country, there should be used simultaneously with the ordinary thermometer shelter, such other arrangements as the Stevenson screen and the French screen, and at least the Assmann aspiration thermometer (large size) of the present construction (Fuess, 1896). Comparisons should be continued during two years, and if the results can not be published *in extenso* the means and extremes should at least be given for each month. It is also considered very important that a uniform model of shelter be adopted in each country, and that a complete description with drawings and dimensions be published, so that it can be reproduced exactly anywhere.

Monthly charts were presented to the Conference by M. Paulsen indicating the floating ice in the Atlantic north of the sixtieth parallel, and the following resolution was adopted:

The Conference appreciates the high scientific value of the work undertaken by M. Paulsen. It expresses the wish that the institutions receiving reports from navigators in the northern seas above 60°, should send to M. Paulsen the observations which they may collect.

Mr. Wragge's proposal to establish stations on Mount Wellington (4,650 feet) in Tasmania, and on Mount Kosciusko (8,000 feet) at the southeast extremity of Australia, and to publish hourly observations was approved by the Conference.

The following proposition of Dr. Hann was adopted:

The directors of the meteorological services of the different countries are requested to give in their annals a list of the publications relating to meteorology and terrestrial magnetism appearing in their countries.

M. Hildebrandsson read a note on the necessity of creating